KATHMANDU UNIVERSITY
End Semester Examination [C]
January 2025

Level : B.E./BIT
Year : I
Time : 2 hrs. 30 mins.

10 JAN 2025

Course : COMP 102
Semester : I
F. M. : 40

SECTION "B"

[6Q. × 4 = 40 marks]

Attempt *ANY SIX* questions.

1. Explain the use of #define preprocessor directive. Write a recursive program to find a GCD of two numbers. [1+3]

2. What is the significance of the & (address-of) operator? How does pointer arithmetic work in C? Explain with suitable examples. [1+3]

3. Write a C program to convert a given number from decimal to binary using bitwise operators. [4]

4. What are the different types of storage classes in C? Explain each with an example. [4]

5. What is the significance of the return keyword in a function in C? What is the difference between struct and union in C? [1+3]

6. Explain the concept of call by value and call by reference with suitable examples. [2+2]

7. What are the advantages and disadvantages of using dynamic memory allocation in C programming? [2+2]

SECTION "C"

[2Q. × 8 = 16 marks]

Attempt *ANY TWO* questions.

8. Explain the working of a for loop and how it differs from a while loop. Write a C program that finds the largest and smallest elements in an array using function. [2+2+4]

9. What is the difference between the *sizeof* operator and *strlen()* function in C? When would you use them? Write a program to read a sentence and counts the total number of character and words using while loop. [2+6]

10. Write a program that defines a structure named *LibraryBook* with the attributes such as: *bookID*, *title*, *author* and *availability*. Your program should have function *printLibraryBookDetails* that takes a *LibraryBook* structure as an argument and prints all the details; and calculate and print the number of available books using the *countAvailableBooks* function. [8]